

REMARKS***Summary of the Amendment***

Upon entry of the *Listing of Claims*, claims 6 – 25 remain pending.

Summary of the Official Action

In the instant Office Action, the Examiner has rejected claim 20 under 35 U.S.C. § 112, second paragraph, and has rejected claims 6 – 25 over the applied art of record. By the present remarks, Applicant submits that the rejections have been overcome, and respectfully requests reconsideration of the outstanding Office Action and allowance of the present application.

Request for Citation of Cited Item

Applicant notes that that U.S. Patent No. 3,483,698 to LEWIS, which was applied against several of the pending claims was not listed on the Form PTOL-892 supplied by the Examiner with the pending Office Action. Accordingly, Applicant requests that the Examiner cite this document to ensure that it will be listed on the face of any patent issuing from this application.

Traversal of Formal Rejection Under 35 U.S.C. § 112, Second Paragraph

Applicant traverses the formal rejection of claim 20 under 35 U.S.C. § 112, second paragraph, as being indefinite.

As Applicant noted in the previous response, the Examiner is apparently not reading the entire claim in its proper context. That is, for those ordinarily skilled in the art, the phrase “at least one of A or B” is common parlance is understood as “A and/or B.” In Applicant’s claim 20, this common patent parlance is used to further define the plurality of sleeves of the claimed at least one resonator as being oriented along a direction of gas flow and/or extending into the open area of the injection head.

Thus, Applicant submits that one ordinarily skilled in the art reviewing the original

disclosure and claim 20 would understand the claim terminology and be able to readily ascertain the scope of claim 20, i.e., that the at least one resonator comprises a plurality of sleeves (1) oriented along a direction of gas flow and/or (2) extending into the open area of the injection head.

Accordingly, Applicant further submits that the claim is fully in compliance with the requirements of 35 U.S.C. § 112, second paragraph, such that the pending rejection is improper and should be withdrawn. Accordingly, reconsideration and withdrawal of the pending rejection is requested.

Traversal of Rejection Under 35 U.S.C. § 102(b)

1. Over Vuillamy

Applicant traverses the rejection of claims 6 – 25 under 35 U.S.C. § 102(b) as being anticipated by VUILLAMY et al. (U.S. Patent No. 5, 404,715) [hereinafter “VUILLAMY”]. The Examiner asserts that, with regard to claims 6 – 13, elements 132 and 136 depicted in Fig. 4 of VUILLAMY are resonators connected to a prechamber 31 to dampen vibrations. Applicant traverses the Examiner’s assertions.

Applicant initially notes that the Examiner’s rejection alleges that VUILLAMY discloses the elements recited in claims 6 – 13, but fails to provide any details on the purported rejection of claims 14 – 25. That is, in the pending action, the Examiner has not alleged that any elements recited in claims 14 – 25 are disclosed in the applied art of VUILLAMY, such that the rejection of these claims is improper on its face and should be withdrawn. Since the Examiner does not provide an examination of these claims, it is believed that the listing of claims 14 – 25 as rejected was in error and that the Examiner intended to indicate that these claims are allowed.

A claim is anticipated only if each and every element as set forth in the claim is found,

either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). See *The Manual of Patent Examining Procedure* [hereinafter "MPEP"] § 2131. Applicants submit that the applied art does not show each and every element of the claimed invention.

Applicant's independent claim 6, as amended, recites, *inter alia*, *at least one resonator* structured and arranged to dampen vibrations being connected to a pre-chamber, such that the pre-chamber is connected to the combustion chamber to dampen vibrations via at least one passage channel. Applicant submits that VUILLAMY fails to show each and every recited element of at least the above-noted claim.

VUILLAMY is directed to rocket engine having an injection plate having multiple propellant injectors for injecting a first and second propellant. In the pending rejection of claims 6 – 13, the Examiner asserts that Fig. 4 of VUILLAMY discloses at least one "resonator" 132 or 136 connected to a pre-chamber 31, but the Examiner has not identified any express or implied teaching that would lead one ordinarily skilled in the art to interpret elements 132 or 136 of VUILLAMY as resonators. A fair reading of VUILLAMY reveals that elements 132 and 136 of VUILLAMY are described as a single injection plate fixed to a wall 171 separating an annular cavity 125 of gas generator 120 from burn zone 114. While VUILLAMY discloses mixing of the propellants and the injectors of 132 feeding the burn zone and the injectors of 136 feeding the annular cavity 125.

While alleging VUILLAMY discloses resonators, the Examiner has not identified any express or implied disclosure in VUILLAMY that suggests that injectors 132 and 136 are structured to form a resonator. Further, Applicant notes that the Examiner has not identified any arguable disclosure in VUILLAMY that describes a resonator connected to a pre-chamber, such

that the pre-chamber is connected to the combustion chamber to dampen vibrations via at least one channel.

Because VUILLAMY fails to show at least the above-noted features, and fails to disclose that such missing features are inherent in the disclosed device, Applicant submits that the applied art fails to show each and every recited elements of the at least independent claim 6. Thus, Applicant submits that the Examiner has failed to establish an adequate evidentiary basis to support a rejection of anticipation under 35 U.S.C. § 102(b), such that the pending rejection should be reconsidered and withdrawn.

Further, Applicant submits that claims 7 – 13 are allowable at least for the reason that these claims depend from allowable base claims and because these claims recite additional features that further define the present invention. In particular, Applicant submits that VUILLAMY fails to anticipate the embodiments of the invention recited in at least claims 7 – 13.

Moreover, as noted above, because the Examiner has not even attempted to identify each and every recited element of Applicant's claims 14 – 25 in the applied art of VUILLAMY, Applicant submits that any rejection of claims 14 – 25 (to the extent that the Examiner intended to reject these claims, which is not apparent from the totality of this office action) is improper and must be withdrawn. Thus, Applicant further submits that VUILLAMY fails to show each and every recited elements of claims 14 – 25, such that the Examiner has failed to establish an adequate evidentiary basis to support a rejection of anticipation under 35 U.S.C. § 102(b), such that the pending rejection should be reconsidered and withdrawn.

Accordingly, Applicant requests that the Examiner reconsider and withdraw the rejection of claims 6 – 25 under 35 U.S.C. § 102(b) and indicate that these claims are allowable.

2. Over Lewis

Applicant traverses the rejection of claims 6 – 8 and 13 under 35 U.S.C. § 102(b) as being anticipated by LEWIS (U.S. Patent No. 3,483,698). The Examiner asserts that LEWIS shows a resonator 100 to dampen vibrations that is connected to a prechamber 59 that is connected to a combustion chamber 10 via at least one passage 100. Applicant traverses the Examiner's assertions.

A careful review of LEWIS reveals that a resonator chamber 59 is delimited by cylindrical member 58, inner combustion chamber absorber wall 12, and annular members 56 and 57, and that this resonator chamber 59 and the air columns in holes 100 of wall 12 form a Helmholtz resonator. Thus, Applicant submits that one ordinarily skilled in the art reviewing the disclosure of LEWIS would understand that the "resonator" of LEWIS is formed by resonator chamber 59 and the air columns in holes 100.

As the resonator is located within combustion apparatus 6 and connected to inner combustion chamber separator wall 12, which defines the combustion chamber, Applicant submits that LEWIS fails to expressly or implied disclose a pre-chamber, as recited in at least independent claim 6. That is, Applicant's independent claim 6 recites, *inter alia*, at least one resonator structured and arranged to dampen vibrations being connected to a pre-chamber, in which the pre-chamber is connected to the combustion chamber to dampen vibrations via at least one passage channel.

As LEWIS fails to disclose a pre-chamber connected to the combustion chamber, in which the resonator is connected to the pre-chamber. As the "pre-chamber" identified by the Examiner is LEWIS is the resonator, Applicant submits that the Examiner has failed to identify the claimed pre-chamber, such that the applied art fails to show each and every recited elements of the at least independent claim 6. Thus, Applicant submits that the Examiner has failed to

establish an adequate evidentiary basis to support a rejection of anticipation under 35 U.S.C. § 102(b), such that the pending rejection should be reconsidered and withdrawn.

Further, Applicant submits that claims 7 – 8 and 13 are allowable at least for the reason that these claims depend from allowable base claims and because these claims recite additional features that further define the present invention. In particular, Applicant submits that LEWIS fails to anticipate the embodiments of the invention recited in at least claims 7 – 8 and 13.

Accordingly, Applicant requests that the Examiner reconsider and withdraw the rejection of claims 6 – 8 and 13 under 35 U.S.C. § 102(b) and indicate that these claims are allowable.

3. Over Mandai

Applicant traverses the rejection of claims 6 – 9 under 35 U.S.C. § 102(b) as being anticipated by MANDAI (U.S. Patent Application Publication No. 2002/0152751). The Examiner asserts that MANDAI discloses a resonator 24 connected to a prechamber 106 and a combustion chamber within reference element 12. Applicant traverses the Examiner's assertions.

Applicant notes that, while MANDAI discloses a combustion chamber 12 and an acoustic liner 24 having plurality of oscillation damping orifices 12b to fluidly communicate the internal volume of the combustion chamber 12 with the interior of acoustic liner 24, this document fails to disclose a prechamber, as recited in at least independent claim 6. While the Examiner alleges compressed air chamber 106 is a prechamber, Applicant notes that there no express or implied disclosure in MANDAI that compressed air chamber 106 is *connected to* the acoustic liner, as recited in the claims.

As MANDAI fails to disclose the pre-chamber as recited in at least independent claim 6, Applicant submits that the Examiner has failed to identify the claimed pre-chamber, such that the

applied art fails to show each and every recited elements of the at least independent claim 6. Thus, Applicant submits that the Examiner has failed to establish an adequate evidentiary basis to support a rejection of anticipation under 35 U.S.C. § 102(b), such that the pending rejection should be reconsidered and withdrawn.

Further, Applicant submits that claims 7 – 9 are allowable at least for the reason that these claims depend from allowable base claims and because these claims recite additional features that further define the present invention. In particular, Applicant submits that MANDAI fails to anticipate the embodiments of the invention recited in at least claims 7 – 9.

Accordingly, Applicant requests that the Examiner reconsider and withdraw the rejection of claims 6 – 9 under 35 U.S.C. § 102(b) and indicate that these claims are allowable.

4. Over Mower

Applicant traverses the rejection of claims 6 – 13 under 35 U.S.C. § 102(b) as being anticipated by MOWER (U.S. Patent No. 3,200,589). The Examiner asserts that MOWER shows a resonator 21 and a prechamber 16 connected to combustion chamber 3. Applicant traverses the Examiner's assertions.

Applicant notes that MOWER discloses an injector 1 connected to a combustion chamber 3. Injector 1 includes a body 10 having a face plate 13 having propellant injection orifices 14 and radial passages from a propellant manifold area to injection orifices 14. Extending from face plate 13 is a number of baffles 21 having propellant passages 23, 24. As described by MOWER, the gases, in the initial stages of combustion, rapidly expand and travel both axially and transversely, which results in acoustic resonance. As the gases travel transversely, baffles 21 intercept and redirect or dampen the acoustic resonance.

As MOWER uses baffles extending from face plate 13 to intercept and redirect or

dampen acoustic resonance due to the rapidly expanding combustion gases, Applicant submits that MOWER fails to disclose a *resonator* structured and arranged to dampen vibrations. In this regard, the Examiner has not identified any express or implied disclosure in MOWER that baffles 21 would be understood by those ordinarily skilled in the art as a resonator.

Further, Applicant notes that, while the Examiner asserts passage 16 is a pre-chamber, there is no express or implied teaching in MOWER identified by the Examiner to support this assertion. Passage 16 is a conduit through which the propellant is conveyed from the source (manifold) to the combustion chamber. Thus, for this additional reasoning, Applicant submits that MOWER fails to anticipate the claimed embodiments.

As MOWER fails to disclose at least the above-noted features of at least independent claim 6, Applicant submits that the Examiner has failed to show in the applied art each and every recited elements of the at least independent claim 6. Thus, Applicant submits that the Examiner has failed to establish an adequate evidentiary basis to support a rejection of anticipation under 35 U.S.C. § 102(b), such that the pending rejection should be reconsidered and withdrawn.

Further, Applicant submits that claims 7 – 13 are allowable at least for the reason that these claims depend from allowable base claims and because these claims recite additional features that further define the present invention. In particular, Applicant submits that MOWER fails to anticipate the embodiments of the invention recited in at least claims 7 – 13.

Accordingly, Applicant requests that the Examiner reconsider and withdraw the rejection of claims 6 – 13 under 35 U.S.C. § 102(b) and indicate that these claims are allowable.

Request for Complete Action in Next Communication

As noted above, Applicants respectfully submit that the Examiner did not specifically address each of the features of claims 14 – 25 in the pending application. Thus, Applicants

respectfully submit that the Examiner has erred in not setting forth a complete action or a clear record.

In this regard, the Examiner is reminded of the guidance provided by 37 C.F.R. §

1.104(a)(1) regarding the Nature of Examination (emphasis added):

On taking up an application for examination . . . the examiner shall make a thorough study thereof and shall make a thorough investigation of the available prior art relating to the subject matter of the claimed invention. The examination shall be complete with respect to both compliance of the application . . . with the applicable statutes and rules and to the patentability of *the invention as claimed*, as well as with respect to matters of form, unless otherwise indicated.

Furthermore, the Examiner is respectfully reminded of the guidance provided by MPEP § 2143.03 regarding All Claim Limitations Must be Taught or Suggested, which states (emphasis added) "*[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art.*"

For these reasons, Applicants submit that a clear issue was not developed between the Examiner and Applicant. More specifically, MPEP §706 states:

Before final rejection is in order a clear issue should be developed between the examiner and applicant. To bring the prosecution to as speedy conclusion as possible and at the same time to deal justly by both the applicant and the public, the invention as disclosed and claimed should be thoroughly searched in the first action and the references fully applied; and in reply to this action the applicant should amend with a view to avoiding all the grounds of rejection and objection.

Additionally, MPEP 706.07(a) provides:

Under present practice, second or any subsequent actions on the merits shall be final, except where the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims nor based on information submitted in an information disclosure statement filed during the period set forth in 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p).

Furthermore, a second or any subsequent action on the merits in any application ... will not be made final if it includes a rejection, on newly cited art, other than information submitted in an information disclosure statement filed under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17 (p), of any claim not amended by applicant or patent owner in spite of the fact that other claims may have been amended to require newly cited art.

Accordingly, Applicants respectfully request that the Examiner address the untreated features of the claimed invention in a complete action with the next official communication, such that a clear issue is developed between the Examiner and Applicant. Moreover, Applicant respectfully submits that the next action, which should clarify the record, should not be a final action.

Application is Allowable

Thus, Applicants respectfully submit that each and every pending claim of the present invention meets the requirements for patentability under 35 U.S.C. §§ 102 and 103, and respectfully request the Examiner to indicate allowance of each and every pending claim of the present invention.

Authorization to Charge Deposit Account

The undersigned authorizes the charging of any necessary fees, including any extensions of time fees required to place the application in condition for allowance by Examiner's Amendment, to Deposit Account No. 19 - 0089 in order to maintain pendency of this application.

CONCLUSION

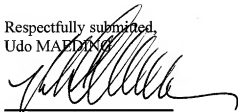
In view of the foregoing, it is submitted that none of the references of record, either taken alone or in any proper combination thereof, anticipate or render obvious the Applicants' invention, as recited in each of claims 6 - 25. The claims have been amended to eliminate any arguable basis for rejection under 35 U.S.C. § 112. In addition, the applied references of record

have been discussed and distinguished, while significant claimed features of the present invention have been pointed out.

Further, any amendments to the claims which have been made in this response and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Accordingly, reconsideration of the outstanding Office Action and allowance of the present application and all the claims therein are respectfully requested and now believed to be appropriate.

Respectfully submitted,
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May 17, 2011
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